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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,242	05/30/2001	Jitendra Singh Goela	51048-2 DIV (3568-33-000)	9573
21874	7590	04/20/2005	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			AUGHENBAUGH, WALTER	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/870,242

Applicant(s)

GOELA ET AL.

Examiner

Walter B. Aughenbaugh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27-30 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-30 and 32-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 29, 2004 has been entered.

### ***Acknowledgement of Applicant's Amendments***

2. New claim 35 presented in the Amendment filed November 29, 2004 has been received and considered by Examiner.

3. Note that the text of claims 27 and 30 in the Amendment filed November 29, 2004 is identical to the text of claims 27 and 30 in the previous Amendment filed May 17, 2004. Consequently, claims 27 and 30 should not be marked up as they are in the Amendment filed November 29, 2004, and the claim status identifier "(Currently Amended)" used to identify claims 27 and 30 in the Amendment filed November 29, 2004 is not the appropriate claim status identifier. The claim status identifier for claims 27 and 30 in the Amendment filed November 29, 2004 should be "(Previously Presented)".

### ***REPEATED REJECTIONS***

4. The 35 U.S.C. 103 rejection of claims 27-29 and 32-34 over Suda et al. made of record in paragraph 2 of the previous Office Action mailed July 29, 2004 has been repeated for the reasons previously made of record in paragraph 2 of the previous Office Action mailed July 29, 2004.

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5. The 35 U.S.C. 103 rejection of claim 30 over Suda et al. in view of Sibley made of record in paragraph 3 of the previous Office Action mailed July 29, 2004 has been repeated for the reasons previously made of record in paragraph 3 of the previous Office Action mailed July 29, 2004.

***NEW REJECTIONS***

***Claim Rejections - 35 USC § 103***

6. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda et al.

Suda et al. teach a hollow chemical vapor deposited monolithic silicon carbide shell (col. 4, lines 39-48) having an aspect ratio of 150 (col. 6, lines 33-35). The method limitations recited in the third through eleventh lines of the claim have not been given patentable weight because these method limitations do not contribute any further structure or composition to that which is recited in the first through second or eleventh through thirteenth lines of the claim, and because the method of forming the shell is not germane to the issue of patentability of the shell itself. Nonetheless, Suda et al. teach providing a silicon carbide precursor gas in proximity to a surface of a solid substrate, subsequently providing a silicon carbide deposit on the surface of the substrate and subsequently removing the silicon carbide deposit (col. 3, lines 55-67 and col. 4, lines 23-27).

While Suda et al. teach that the shell has an external perimeter of 18.5 inches (col. 6, lines 33-35,  $150\text{mm}=5.9\text{inches}$ ,  $5.9*\pi=18.5$ ), Suda et al. fail to explicitly teach that the external perimeter of the shell can be increased to 50 inches. Such a modification, however, would have involved a mere change in size. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Since Suda et al. teach

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that the carbon substrate of Suda et al. is formed of a composite having a thermal expansion that is close to that of the silicon carbide film such that no cracking or deformation of the silicon carbide shell occurs during cooling and that the thermal expansion coefficient of the carbon substrate is easily controlled (col. 4, lines 15-23, col. 3, lines 20-25 and col. 2, lines 12-23), it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the shell of Suda et al. such that it has a particular external perimeter, depending on the particular desired end result, such as 50 inches as claimed, via control of the thermal expansion of the carbon substrate of Suda et al. such that the thermal expansion of the carbon substrate is close to that of the silicon carbide film such that no cracking or deformation of the silicon carbide shell occurs during cooling as taught by Suda et al.

#### ***ANSWERS TO APPLICANT'S ARGUMENTS***

7. Applicant's arguments presented on pages 4-6 of the Amendment filed November 29, 2004 in regard to the 35 U.S.C. 103 rejection of claims 27-29 and 32-34 have been fully considered but are not persuasive. Applicant argues that increasing the external perimeter of the shell above the minimum values recited in claims 27 and 32 would not have been obvious to one of ordinary skill in the art at the time the invention was made because of the unpredictability of crack formation in hollow ceramic shells as the external perimeter of the hollow ceramic shell increases (on page 4, Applicant states "Changing the size of the article... may readily lead to undesirable cracks or defects in the article" and on page 5, Applicant refers to "the unpredictability of scaling SiC materials"). The Office repeats its position set forth in the previous Advisory Action mailed November 4, 2004 and in the previous Office Action mailed July 29, 2004: it is not disputed that there is an element of unpredictability in the scaling of SiC

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materials with regard to crack/defect formation in SiC materials formed via at least some prior art processes, but Suda et al. explicitly teaches that crack or defect formation in the SiC shell of Suda et al. is eliminated by the process used by Suda et al. to form the shell; therefore, one of skill in the art would have had reasonable expectation of success in fabricating a shell having an external perimeter that is larger than any of those explicitly taught in Suda et al.

Applicant argues that Suda et al. is “directed to small articles with diameters such as 150mm”, which corresponds to an external perimeter of 18.5 inches, but the 150mm diameter is a non-limiting example provided by Suda et al.: Suda et al. does not set a maximum diameter at which the process of Suda et al. no longer results in crack/defect-free shells. Applicant’s allegations of surprising results in the paragraph bridging pages 5-6 of the Amendment filed November 29, 2004 are not relevant to article claims 27-29 and 32-34 because the alleged surprising results are obtained as a result of particular processing steps, which are not germane to the patentability of the article itself. Also note that a statement or argument by the attorney is not factual evidence (MPEP 716.01(c)).

8. Applicant’s arguments presented on pages 6-7 of the Amendment filed November 29, 2004 in regard to the 35 U.S.C. 103 rejection of claim 30 have been fully considered but are not persuasive. Applicant’s arguments depend entirely upon Applicant’s arguments regarding the 35 U.S.C. 103 rejection of claims 27-29 and 32-34, which have been addressed above in this Office Action.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-

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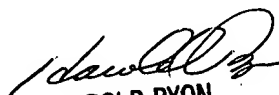
1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter B. Aughenbaugh  
04/18/05

WBA

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

4/17/05